

BOOK REVIEW

LAWRENCE E. STEVENS AND VICKY J. MERETSKY (eds). 2008. **Aridland Springs in North America: Ecology and Conservation.** (Arizona-Sonora Desert Museum Studies in Natural History). (ISBN 978-0816526451, hbk.). University of Arizona Press, 355 S. Euclid Ave., Suite 103, Tucson, Arizona 85719, U.S.A. (**Orders:** www.uapress.arizona.edu, orders@uapress.arizona.edu, 1-800-426-3797). \$75.00, 432 pp., 6" × 9".

This volume grew out of two symposia, one at the Arizona-Sonora Desert Museum in 2000 and the other at the Ecological Society of America meetings in 2002. The book represents concerns and issues developed from the symposia and others that grew from the panel discussions that followed.

The book begins with a series of chapters that address the issues of springs ecosystems, underground hydrology, a springs classification system, and insights on paleontology and paleoecology of springs. This is followed by a series of case studies of springs ecosystems and vegetation covering springs in Arizona, Coahuila, Mexico, and palm oases in the lower deserts of the Southwest. Ecological processes operating at springs are also discussed, looking at springs on the southern Colorado Plateau, Zion and Grand Canyon National Parks, and at terrestrial productivity of springs in comparison with adjacent uplands. Human activity and springs biodiversity are next explored, focusing on springs in northern Sonora and in southern Arizona. Discussions on groundwater pumping and fire follow this section as they are the most immediate and important threats of springs ecosystem integrity. This is followed by legal options for springs conservation; springs often fall into a legal crack as they are considered neither groundwater nor surface water. The concluding essay in the volume explores the critical issues of a need for improved inventory, management assessment, basic and applied research, conservation, and restoration of springs as well as the challenge of engaging the public in improving the care and restoration of springs ecosystems.

This book will appeal to a wide audience including the interested public and researchers at all levels. Recommended for general library audiences and research level collections.

Lawrence E. Stevens is curator of ecology and conservation at the Museum of Northern Arizona and the senior science advisor for the Grand Canyon Wildlands Council, Inc., in Flagstaff. Vicky J. Meretsky is an associate professor of conservation biology at the School of Public and Environmental Affairs at Indiana University, Bloomington.—Gary L. Jennings, Librarian, Botanical Research Institute of Texas, Fort Worth, Texas 76102-4025, U.S.A.

Contents:

Prologue, by Gary P. Nabhan

1. Springs Ecosystem Ecology and Conservation, by Lawrence E. Stevens and Vicky J. Meretsky.
2. The Demise of Desert Springs, by Peter J. Unmack and W. L. Minckley.
3. The Hydrology of Desert Springs in North America, by David K. Kreamer and Abe Springer.
4. A Comprehensive Springs Classification System: Integrating Geomorphic, Hydrogeochemical, and Ecological Criteria, by Abraham E. Springer, Lawrence E. Stevens, Diana E. Anderson, Roderic A. Parnell, David K. Kreamer, Lisa Levin, and Stephen P. Flora.
5. Quaternary Cauldron Springs as Paleoecological Archives, by C. Vance Haynes Jr.
6. The Extreme Environment, Trophic Structure, and Ecosystem Dynamics of a Large Fishless Desert Spring: Montezuma Well, Arizona, by Dean W. Blinn.
7. Combining Ecological Research and Conservation: A Case Study in Cuatro Ciénegas, Coahuila, México, by Dean A. Hendrickson, Jane C. Marks, Angie Moline, Eric Dinger, and Adam Cohen.
8. The Desert Fan Palm Oasis, by James W. Cornett.
9. Spring-Supported Vegetation along the Colorado River, Colorado Plateau: Floristics, Vegetation Structure and Environment, by John R. Spence.
10. Mechanisms of Change in Seep/Spring Plant Communities on the Southern Colorado Plateau, by Vicky J. Meretsky.
11. Biodiversity and Productivity at an Undisturbed Spring in Comparison with Adjacent Grazed Riparian and Upland Habitats, by Bianca S. Perla and Lawrence E. Stevens.
12. Plant Diversity Influenced by Indigenous Management of Freshwater Springs: Flora of Quitovac, Sonora, Mexico, by Gary Paul Nabhan.
13. Historic and Prehistoric Ethnobiology of Desert Springs, by Amadeo M. Rea.
14. Vegetation Dynamics of Great Basin Springs: Potential Effects of Groundwater Withdrawal, by Duncan Patten, Leigh Rouse, Juliet Stromberg.
15. The Knowles Canyon Hanging Garden, Glen Canyon National Recreation Area, Eight Years after Burning: Changes in Vegetation and Soil Biota, by Tim B. Graham.
16. Between the Cracks: Water Law and Spring Conservation in Arizona, by Nancy Nelson.
17. Epilogue: After the Last Drop, by Lawrence E. Stevens.